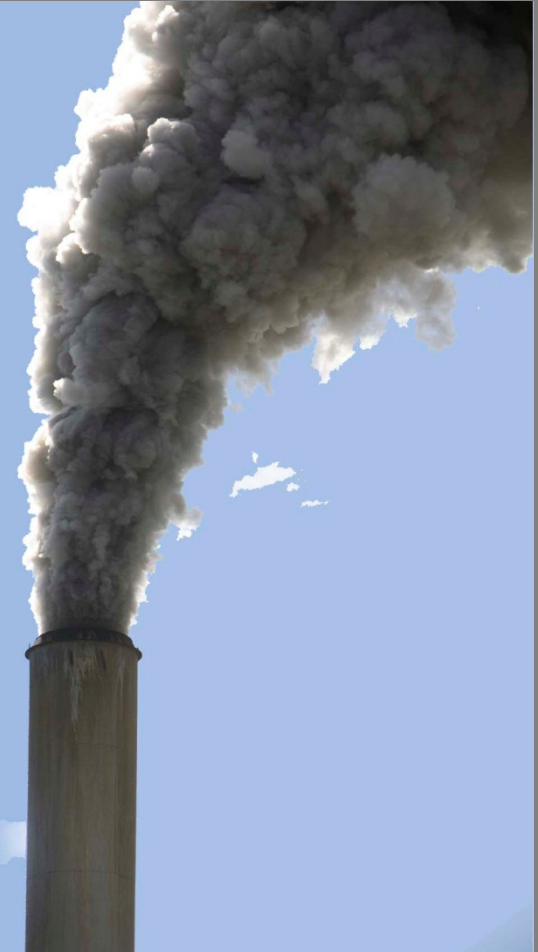


UTAH DAQ

PM 2.5 Workgroup



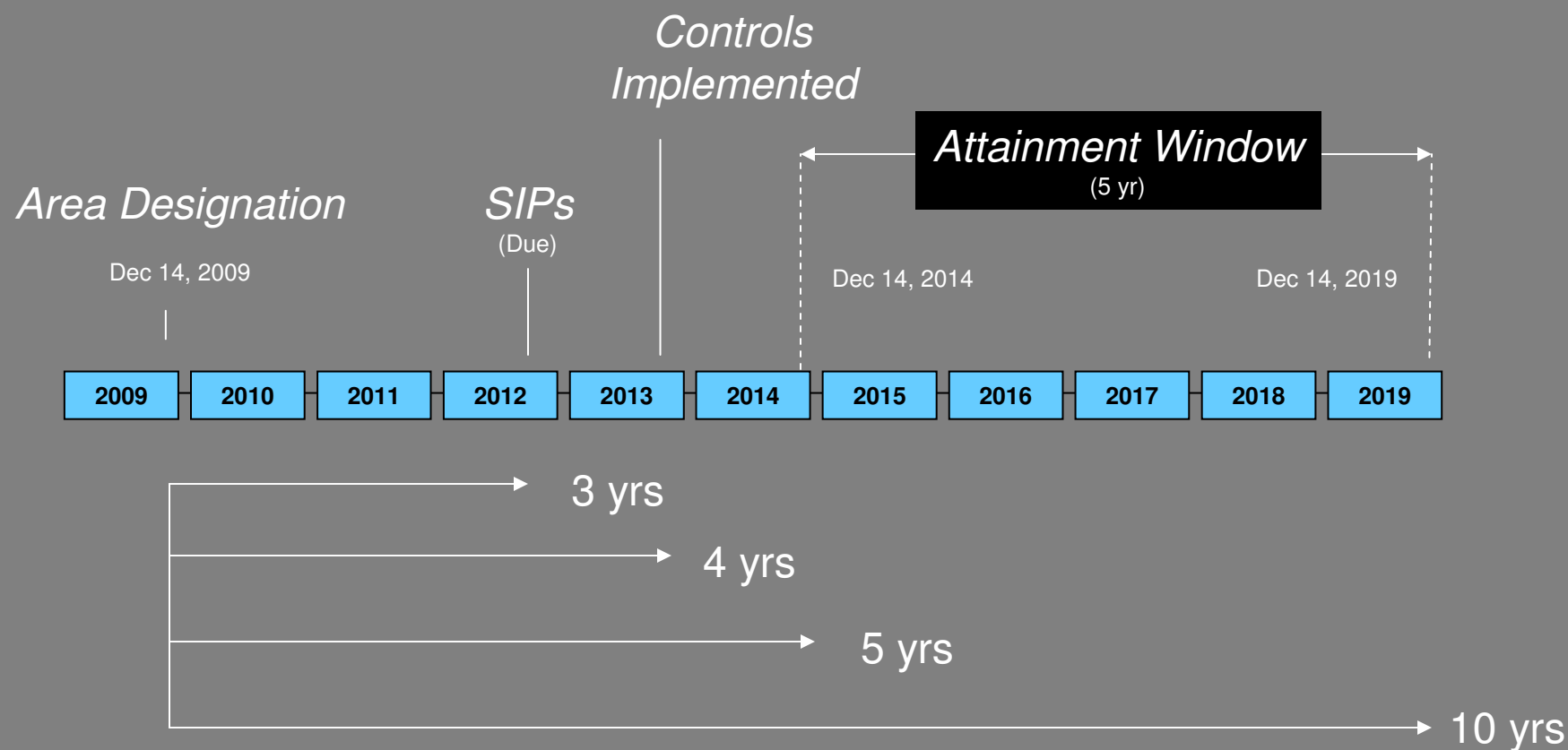
RACT / RACM

- Reasonably Available Control...
 - Measures (any source category; point / area / mobile)
 - Technology (point sources only / therefore, a subset of RACM)
- EPA's Rulemakings for PM_{2.5} RACM
 - Fine Particulate Implementation Rule (handout to summarize)
 - 40 CFR 51.1010
- 3 Steps to Our Job
 - Identify Options that are Feasible
 - Quantify and Test
 - Select

Control Strategies

- Will also apply to the precursors that form PM_{2.5}
- Will consider all Source Categories in the airshed
 - Large Point Sources will be evaluated for Reasonably Available Control Technology (RACT)
 - Controls on Area Sources such as wood burning and minor source categories will be considered
 - Mobile Sources will be evaluated for various strategies (including on-board diagnostics (OBD), I/M, and strategies to reduce vmt)
- Must Adopt all Measures Necessary to:
 - meet the health standard as expeditiously as practicable
 - Meet any Reasonable Further Progress (RFP) requirements

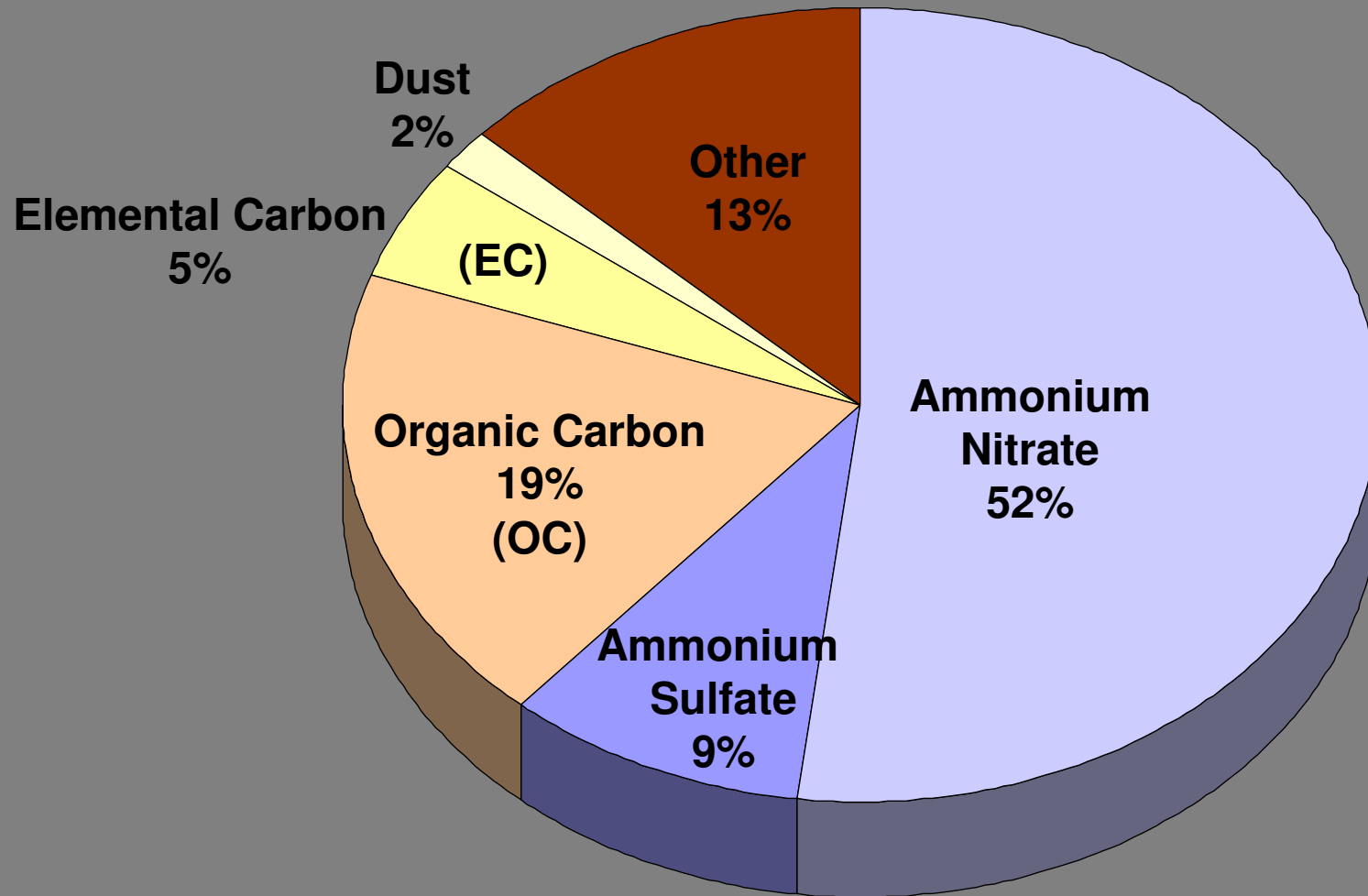
Attainment Dates



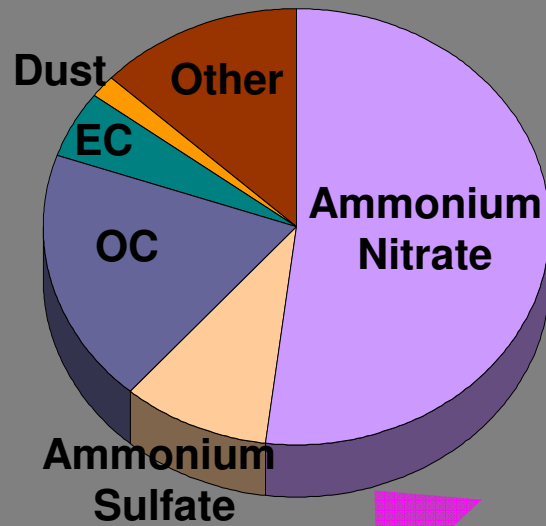
Control Strategy Testing

- Emissions
- Chemistry

Hawthorne School Monitor (7th East, 1700 South)

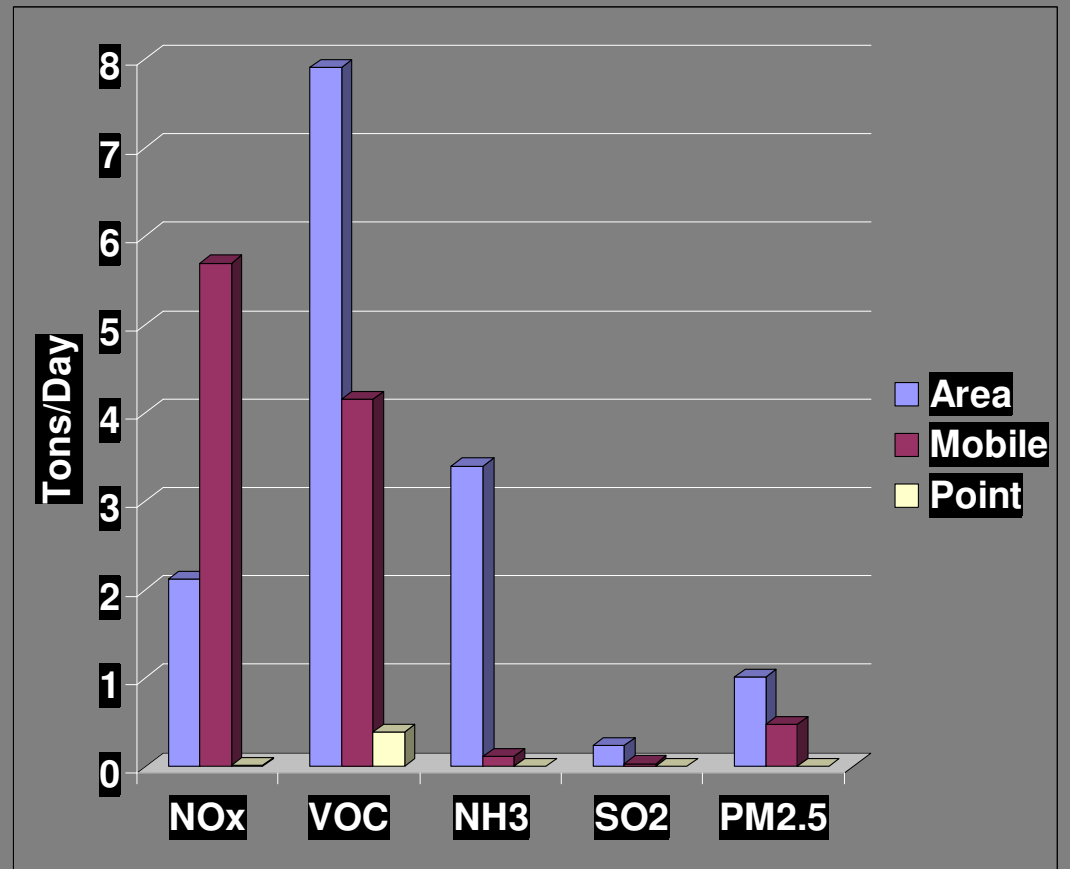


Total PM_{2.5}

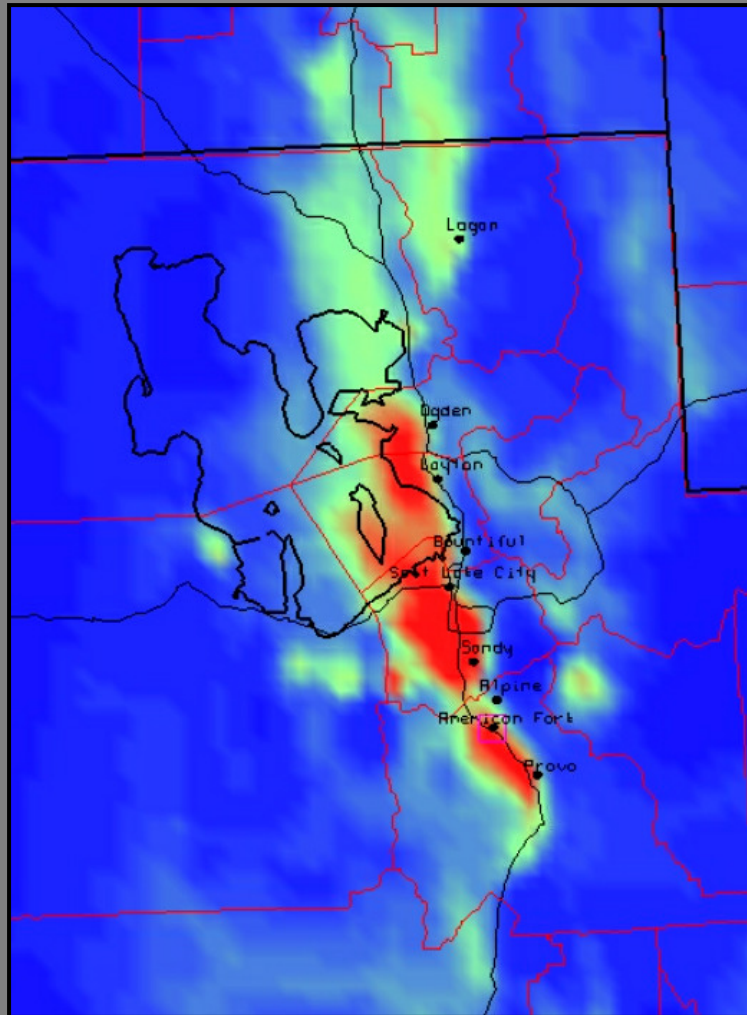


**Chemistry
Atmospheric Dynamics**

Box Elder County Daily Emissions



Model Implications

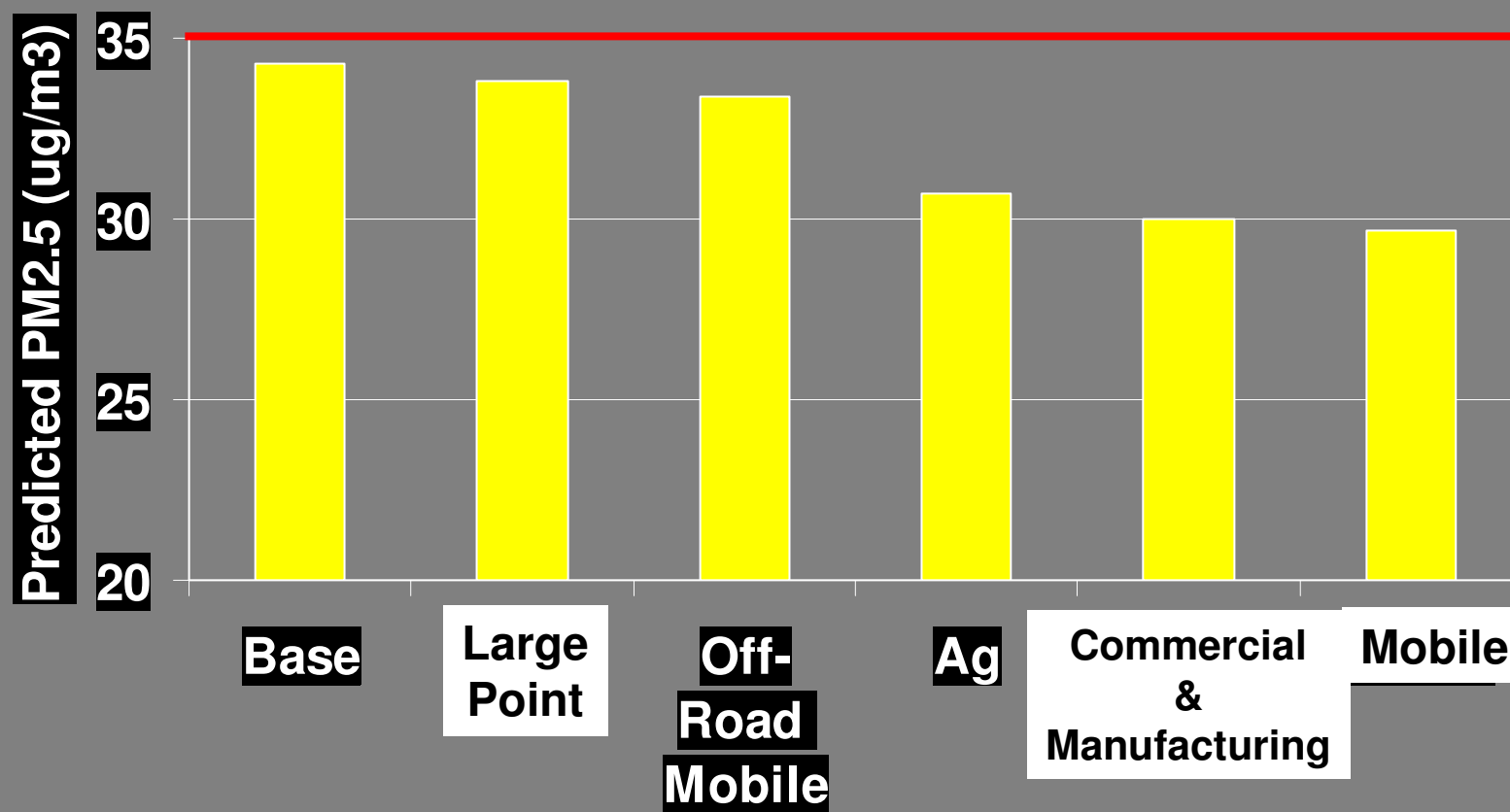


Who ?

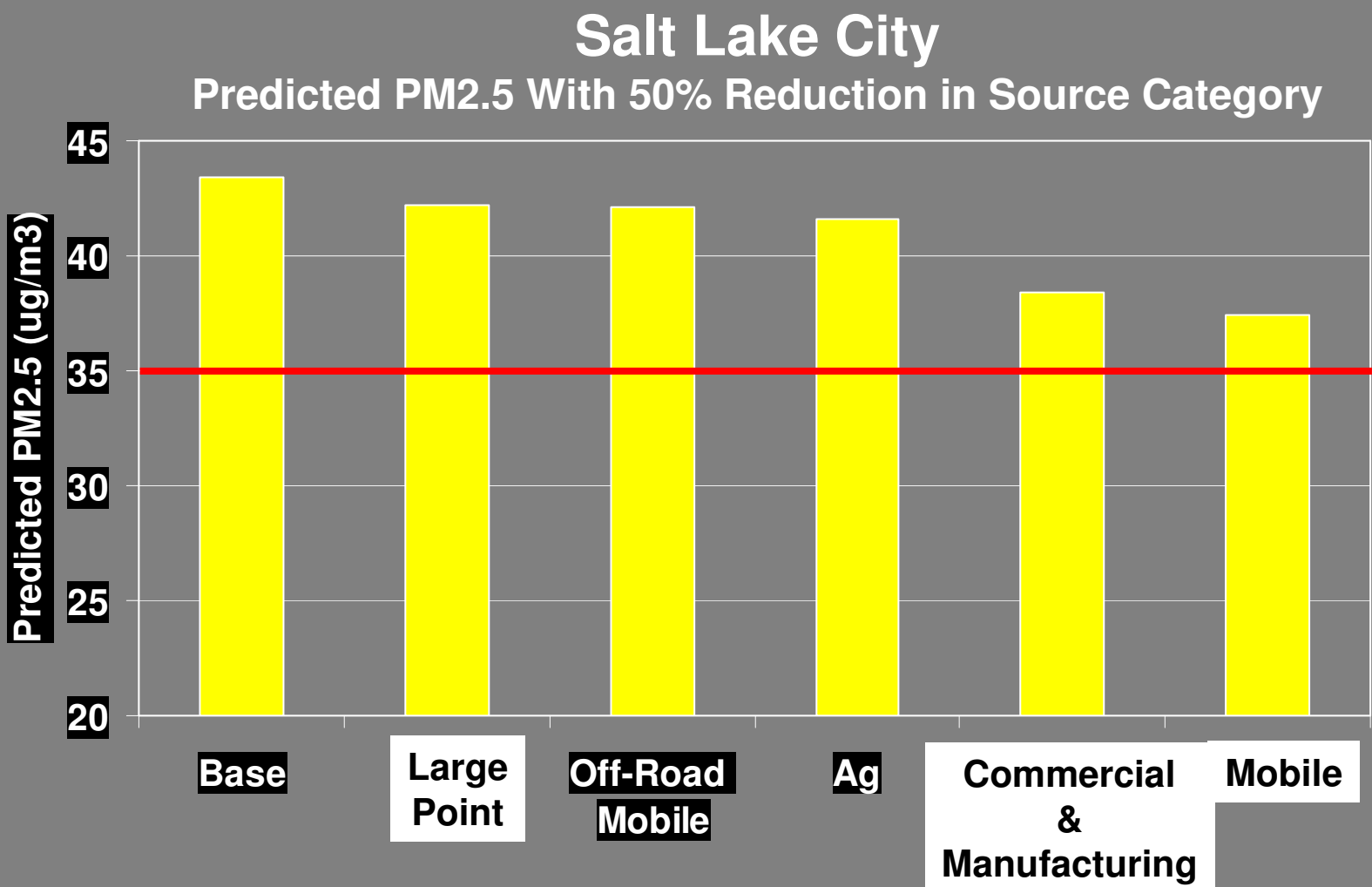
What ?

Who -> Which Source types?

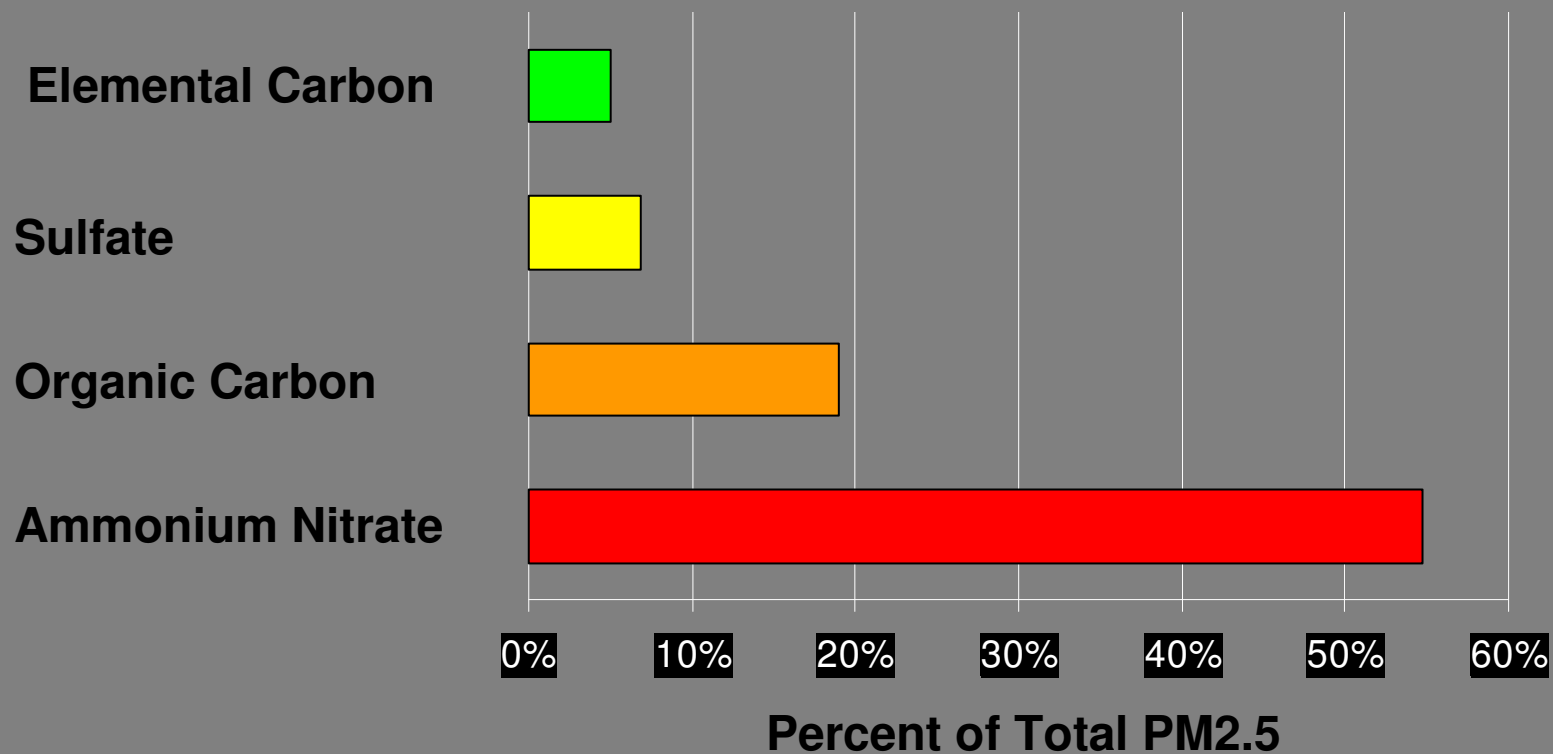
Brigham City
Predicted PM2.5 With 50% Reduction in Source Category



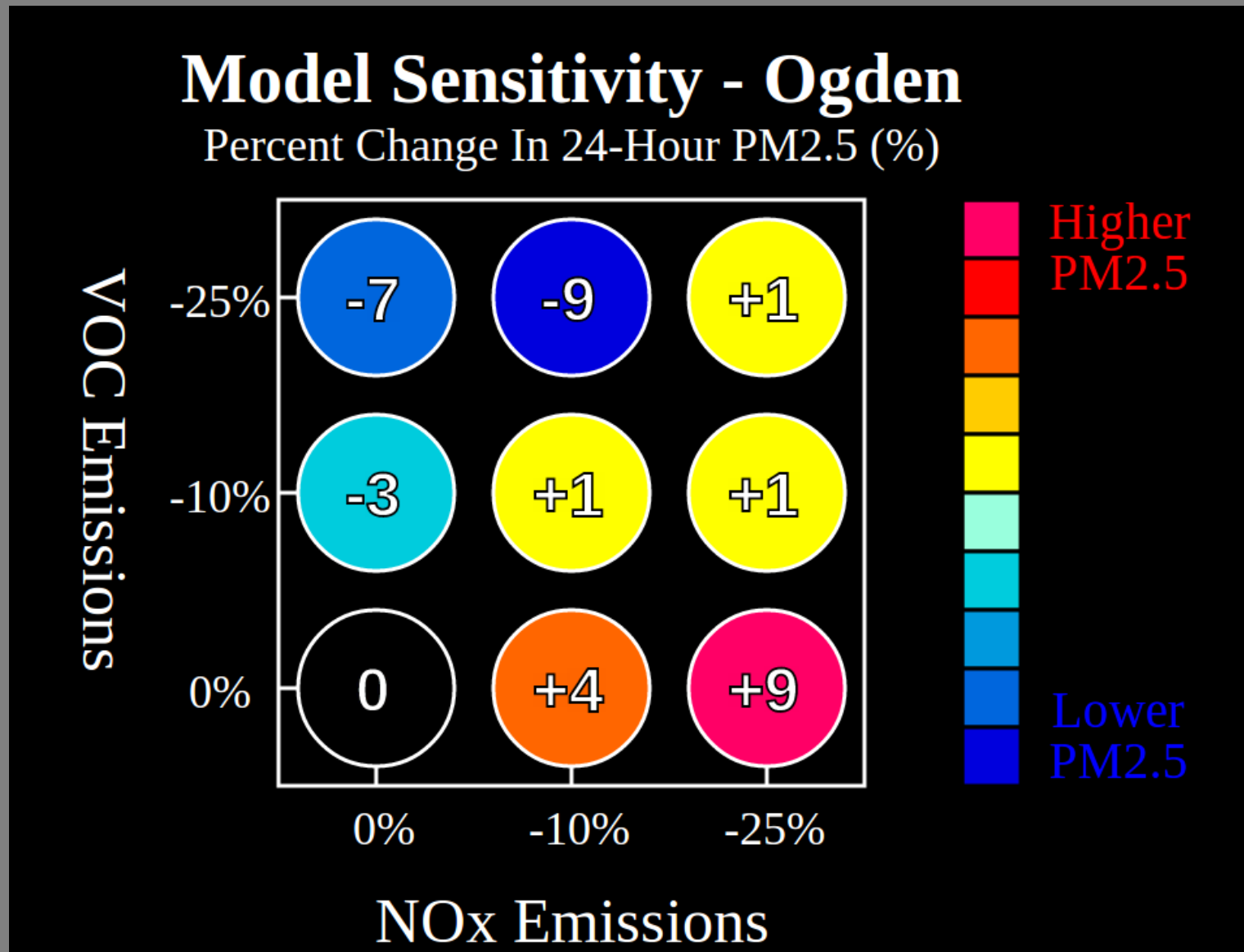
Who -> Which Source types?



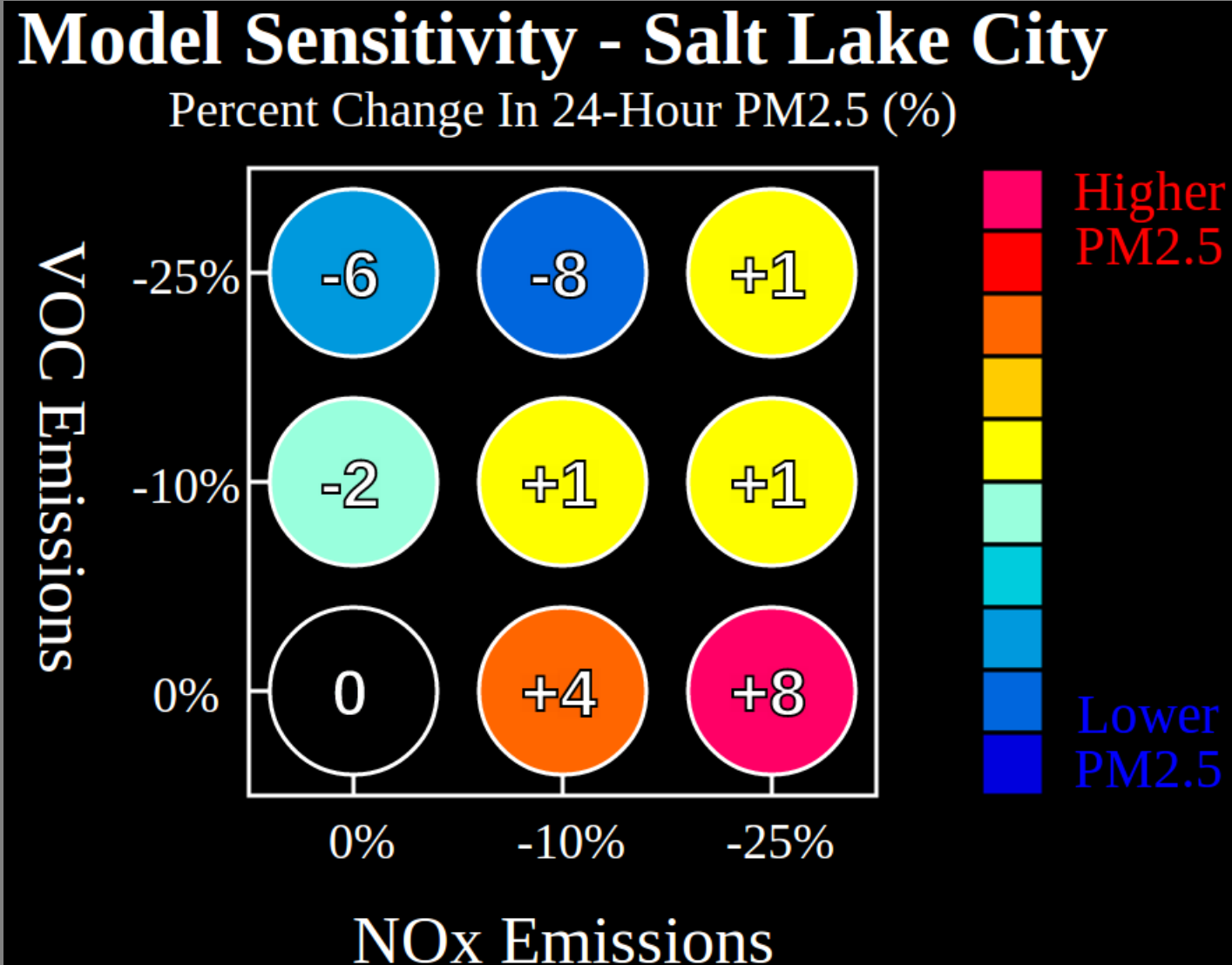
What To Target?



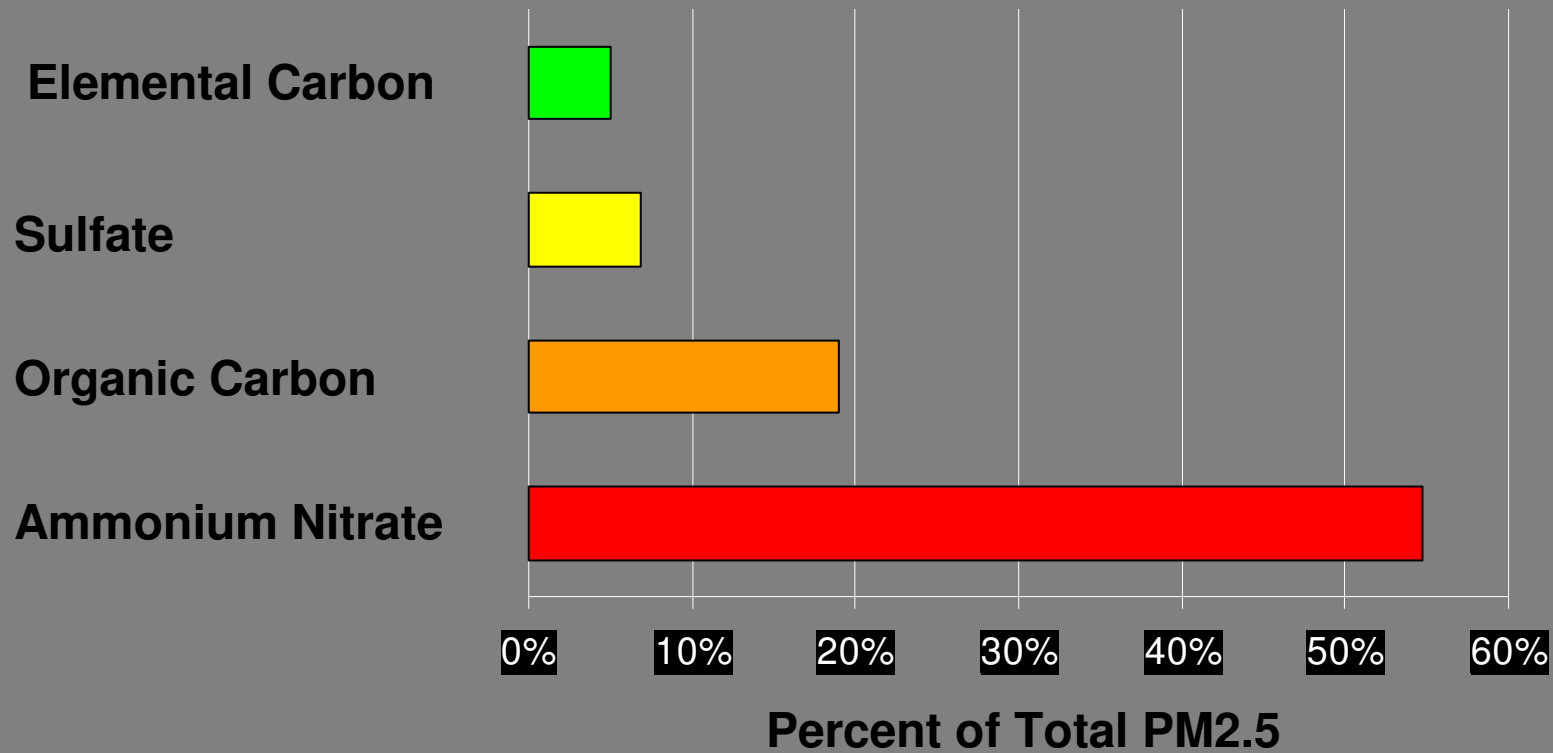
What To Target? -> Non-Linear Response



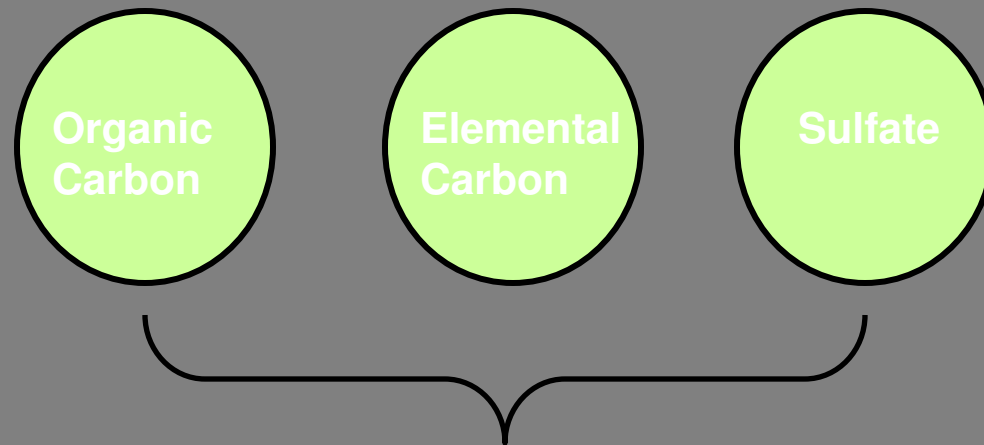
What To Target? -> Non-Linear Response



What To Target?



What To Target? -> Linear Response



Example:

-25% Organic Carbon → -4% Predicted PM2.5

Take Aways

- Area, Mobile
- VOC
- Complex Secondary Chemistry

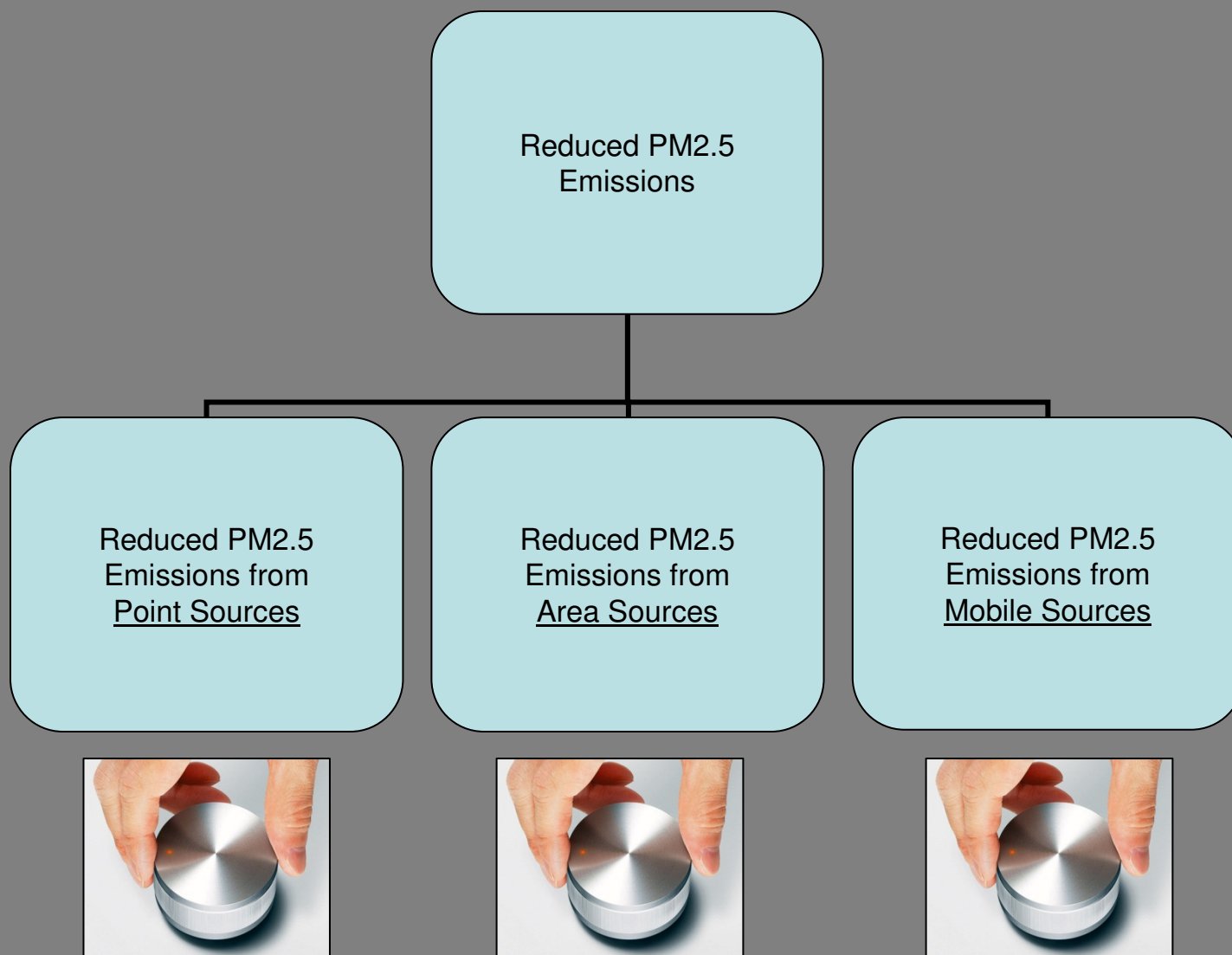
Developing Control Strategies

Goal: Emissions Reduction

Reduced PM_{2.5}
Emissions



Emissions Reduction: Ideal



Emissions Reduction: Reality



Developing Control Strategies: Issues to Consider

- Emissions reduction pathway
- Responsibility for implementation
- Relative air quality benefits
- Timing
- Relative implementation cost
- Political and technical feasibility
- End user impacts

Emissions Reduction Pathway



Emissions Reduction Pathway: Mobile Source Example



Reduced PM_{2.5}
Emissions from
Mobile Sources



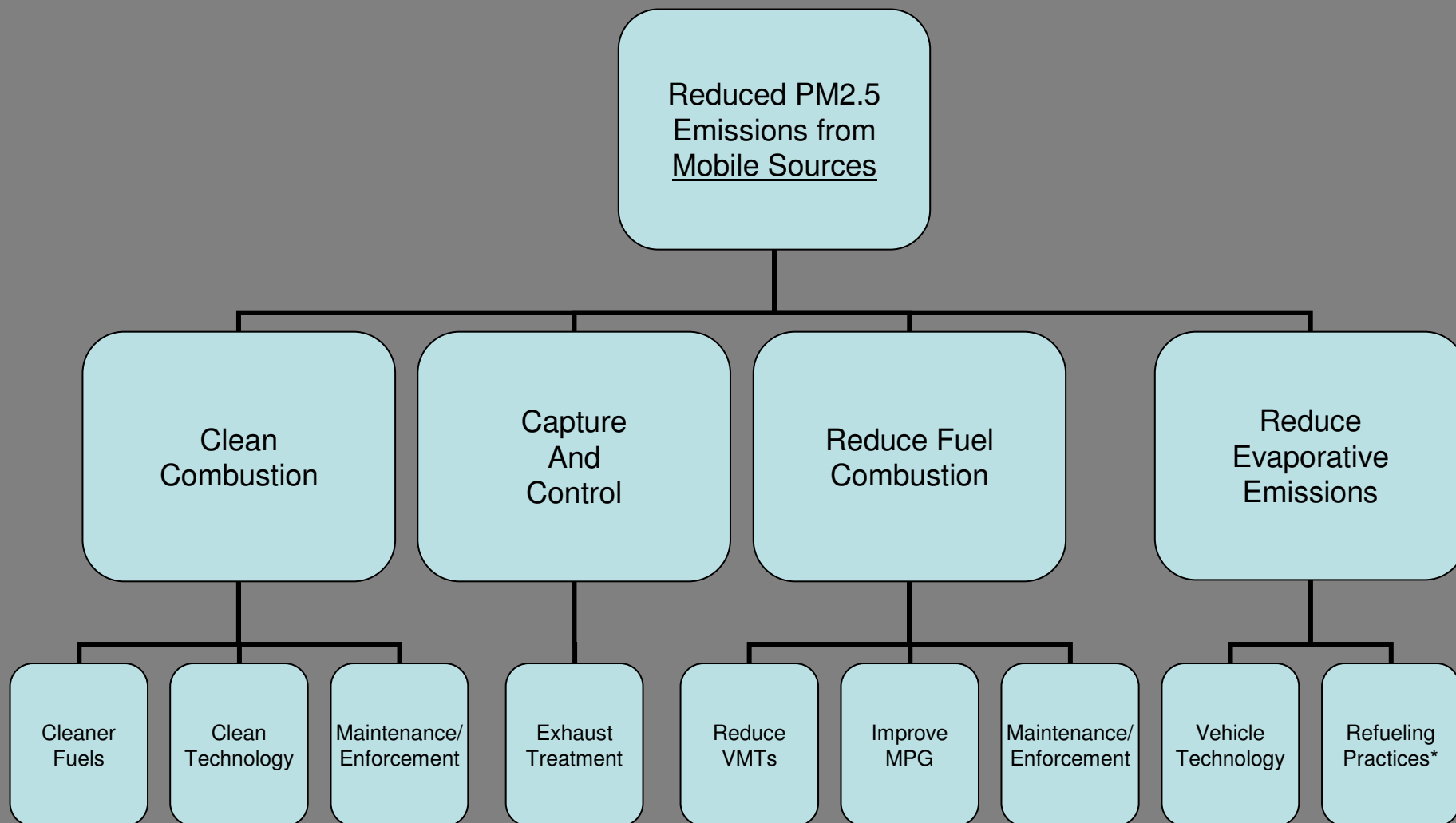
Clean
Combustion

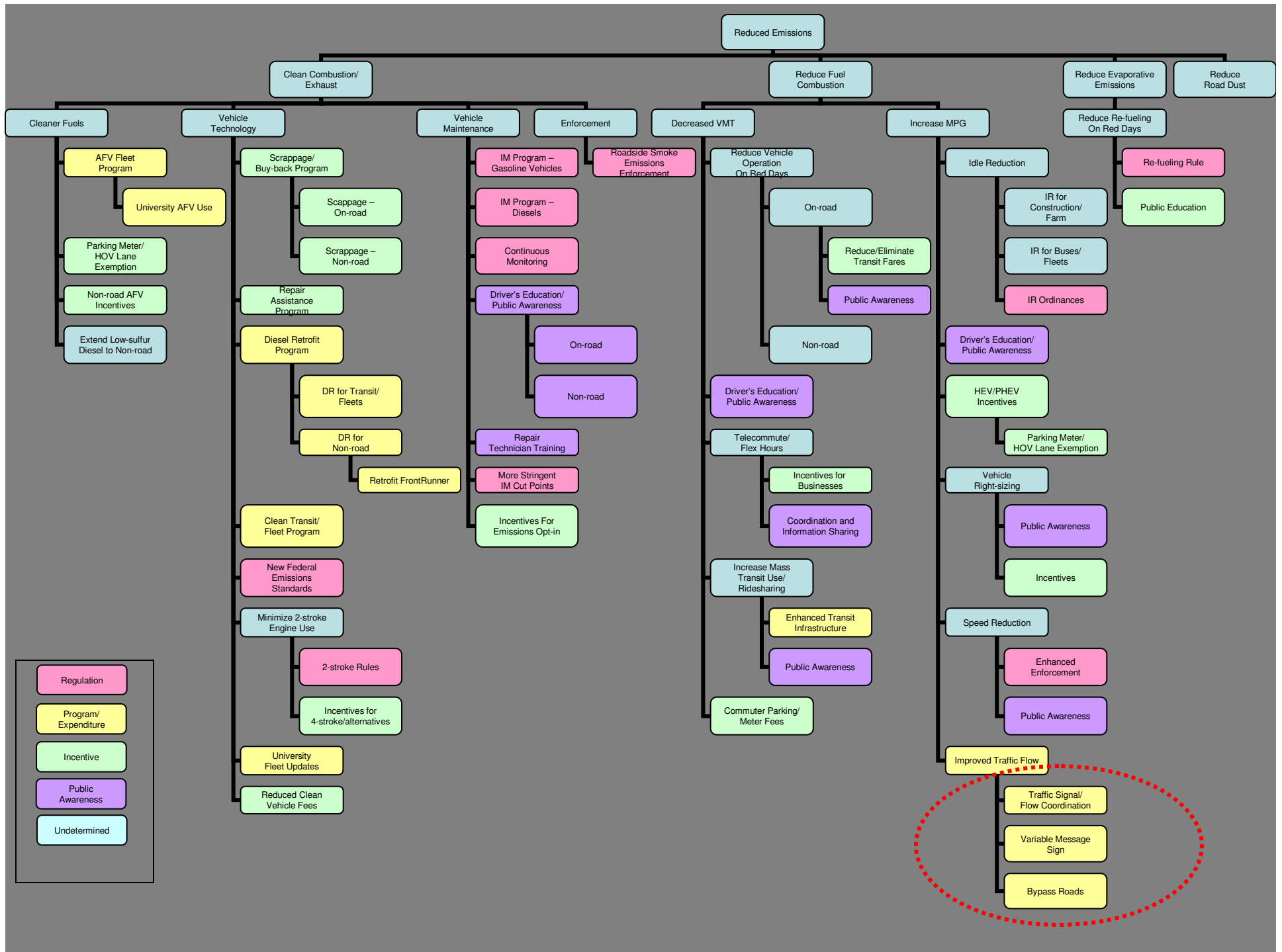
Capture
And
Control

Reduce Fuel
Combustion

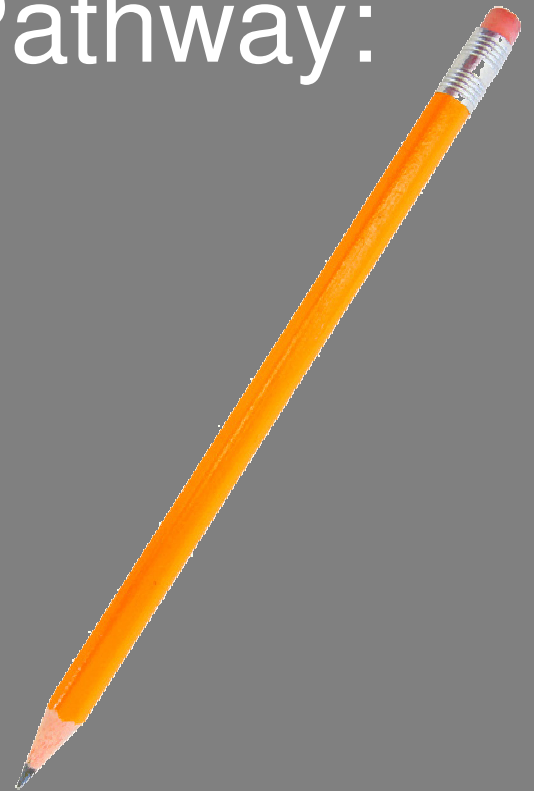
Reduce
Evaporative
Emissions

Emissions Reduction Pathway: Mobile Sources

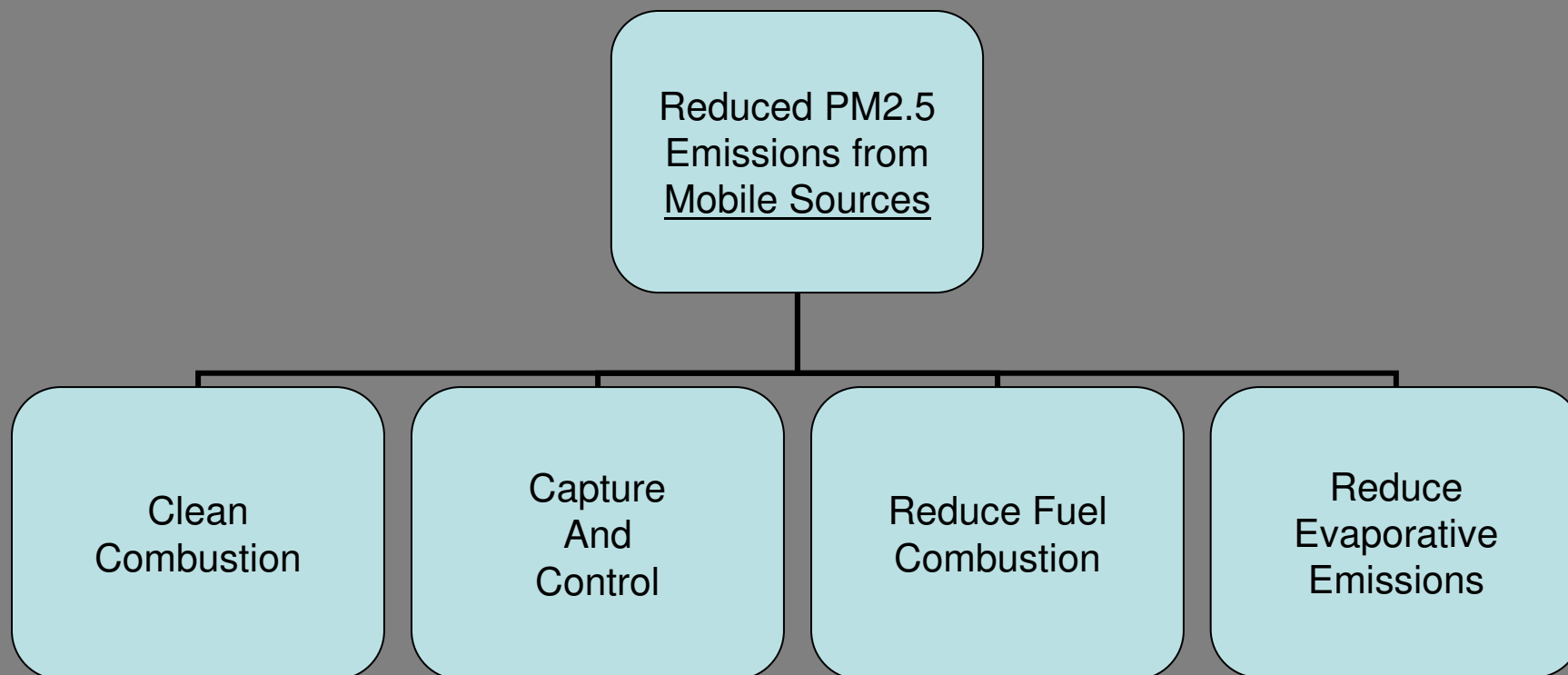




Emissions Reduction Pathway: Exercise

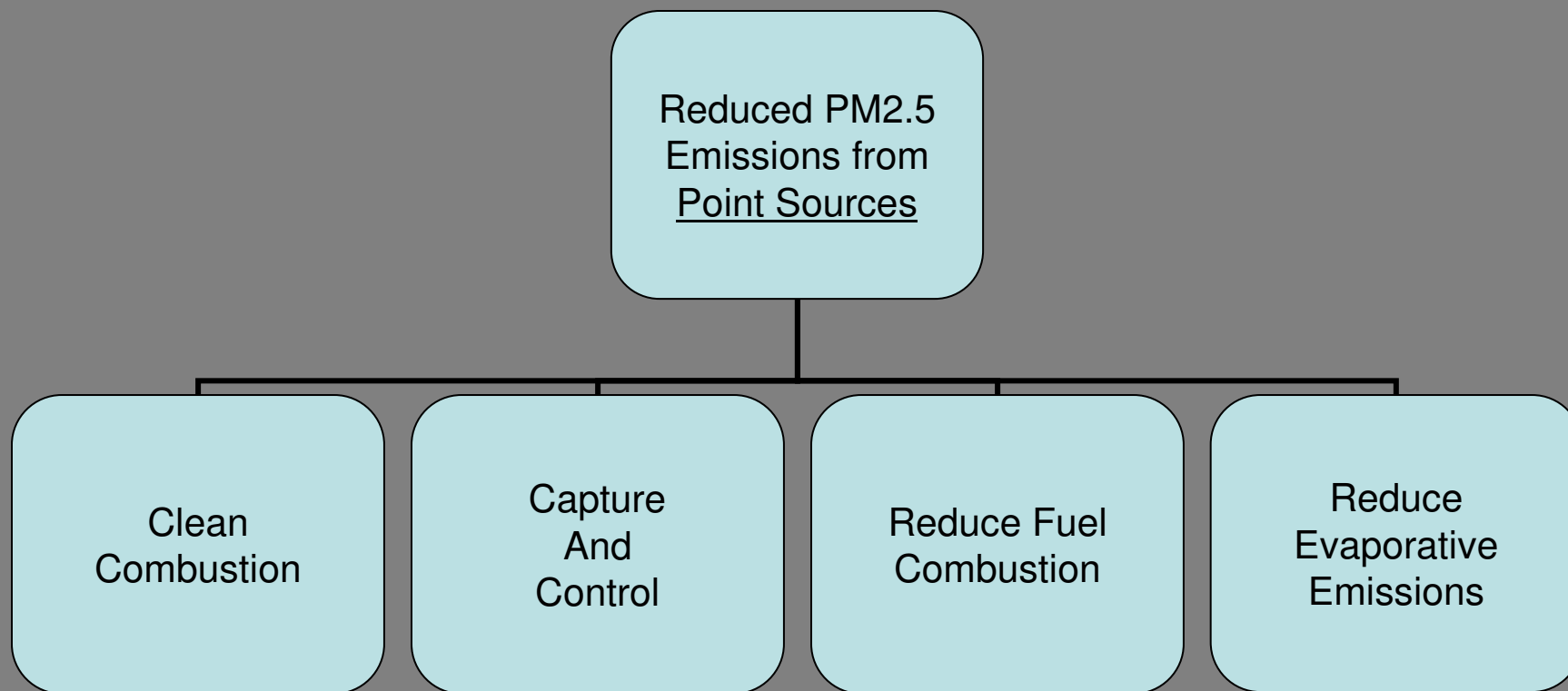


Emissions Reduction Pathway: Mobile Source Examples



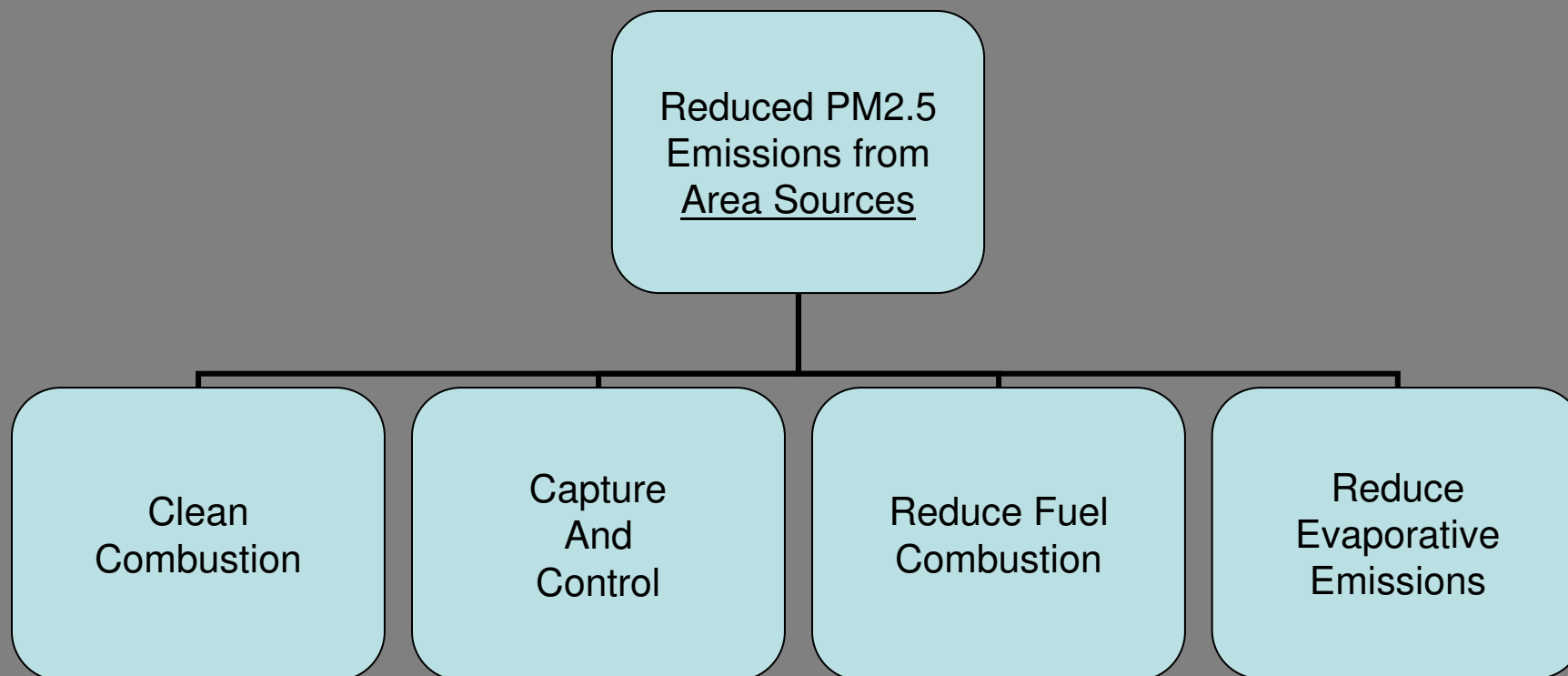
- Diesel oxidation catalyst (DOC) retrofits
- IM program
- Cleaner burning fuels
- Reducing VMTs through enhanced transit

Emissions Reduction Pathway: Point Source Examples



- Low-NOx burners
- Filtration/stream management
- More efficient processes

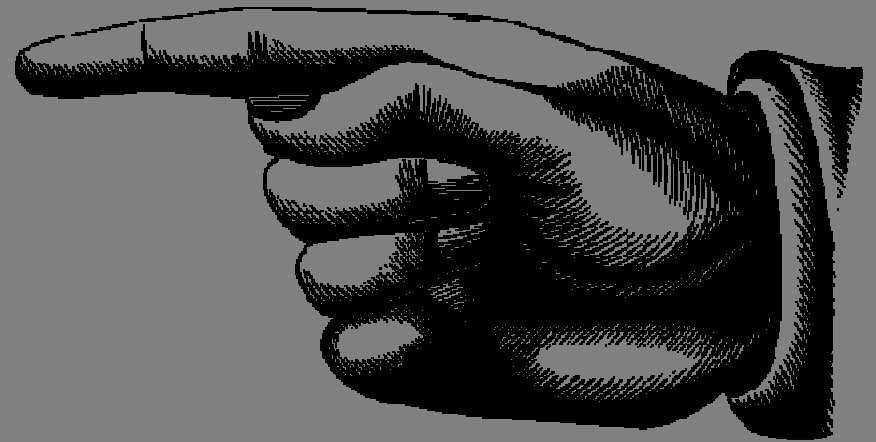
Emissions Reduction Pathway: Area Source Examples



- Reduce soil/manure disturbance
- More efficient residential and commercial heating
- No burning on event days

Responsibility for Implementation

- Who is the primary party (or parties) responsible for implementation?
- Related issues:
 - Do these parties currently have authority to implement?
 - How will the measure be funded?



Relative Air Quality Benefits

- What is the relative impact of the control measure on air quality (e.g. high, medium, low, uncertain)?
 - Is the impact quantifiable?
 - Is the measure enforceable?
 - Is the impact durable?



Timing

- When will the anticipated air quality benefits occur?
 - Immediately
 - Near-term
 - Medium-term
 - Long-term
- Will the air quality impacts meaningfully help achieve attainment status?



Relative Implementation Cost

- What are the costs of implementation?
 - Are there associated savings to help offset costs?
- Who bears the cost?
- At what level are costs to be assessed?
 - To the individual/firm?
 - To a government entity?
 - Economy-wide?



Political and Technical Feasibility

- Is there political support for/opposition to the measure?
 - Can support be built through outreach, information sharing, and collaboration?
- Does the measure face significant technical hurdles that must be addressed before a successful outcome is assured?

End User Impacts



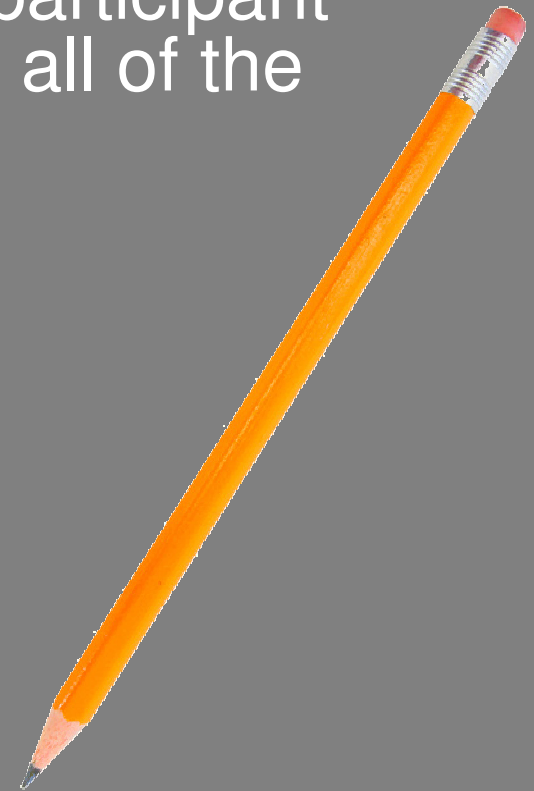
- How are impacts perceived by affected parties (e.g. positive, neutral, negative)?
 - Does the control strategy penalize affected parties with new costs/burdens?
 - Does the control strategy create new services, opportunities, or savings for end users?

Control Strategies: Resources

- List of several potential control strategies across all emissions sources/sectors.
 - List is not exhaustive and participants are encouraged to consider additional measures.
- Reference list with links to various sources of information on control strategies.

Assignment

- Each participant will be asked to submit their top 5 control strategies.
- For each proposed measure, the participant must attempt to evaluate/consider all of the following:
 - Emissions reduction pathway
 - Responsibility for implementation
 - Relative air quality benefits
 - Timing
 - Relative implementation cost
 - Political and technical feasibility
 - End user impacts



Control Strategy Worksheet

[illegible]